INS$_i$	**effect on *i***	**effect on** RAM	**effect on** ST	**effect on *s***
inc	i ← (i+1)	none	ST[s]←(ST[s]+1)	none
dec	i ← (i+1)	none	ST[s]←(ST[s]-1)	none
pop	i ← (i+1)	none	ST[s]←undef	s ←(s-1)
push0	i ← (i+1)	none	ST[s+1]←(0)	s ←(s+1)
load x	i ← (i+1)	none	ST[s+1]←RAM[x]	s ←(s+1)
load IO	i ← (i+1)	none	ST[s+1]←IO	s ←(s+1)
load RNG	i ← (i+1)	none	ST[s+1]←RNG	s ←(s+1)
store x	i ← (i+1)	RAM[x]←ST[s]	ST[s]← undef	s ←(s-1)
store IO	i ← (i+1)	IO←ST[s]	ST[s]← undef	s ←(s-1)
if L	if ST[s]=0 then i←(i+1) if ST[s]≠0 then i←L	none	ST[s]← undef	s ←(s-1)
goto L	i ← L	none	none	none
xor	i ← (i+1)	none	ST[s-1]←(ST[s-1]⊕ST[s] ST[s]←undef	s ←(s-1)
mul	i ← (i+1)	none	def α = ST[s-1]×ST[s] ST[s-1]← α mod 256 ST[s]← α div 256	none
div	If ST[s]=0 then i←AdExcDiv if ST[s]≠0 then i←(i+1)	none	If (ST[s-1] ≠ 0) do ST[s] ← ST[s]/ST[s-1]	none
		effect on NVM		
getstatic x	i ← (i+1)	none	ST[s+1]←NVM[x]	s ←(s+1)
putstatic x	i ← (i+1)	NVM[x]←ST[s]	ST[s]← undef	s ←(s-1)

FIGURE 1

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```
0.   The XμP initializes i ← 1
1.   The XμP requests the ectoinstruction number i from
     the XT
2.   The XT sends the INSi to the XμP
3.   The XμP executes INSi
4.   Go to step 1.
```

FIGURE 2

INS_i	**Alert = TRUE if**
If L	φ(ST[s])=1
div	φ(ST[s])=1
store IO	φ(ST[s])=1
putstatic x	φ(NVM[x])=1

FIGURE 3

INS_i	**Alert = TRUE if**
If L	φ(ST[s])=1
Div	φ(ST[s])=1
Store IO	φ(ST[s])=1
putstatic x	Always

FIGURE 4

INS_i	Effect on Φ
Inc	None
dec	None
pop	$\varphi(ST[s]) \leftarrow 0$
push0	$\varphi(ST[s+1]) \leftarrow 0$
load x	$\varphi(ST[s+1]) \leftarrow \varphi(RAM[x])$
load RNG	$\varphi(ST[s+1]) \leftarrow 1$
store x	$\varphi(RAM[x]) \leftarrow \varphi(ST[s])$ $\varphi(ST[s]) \leftarrow 0$
load IO	$\varphi(ST[s+1]) \leftarrow 0$
store IO	$\varphi(ST[s]) \leftarrow 0$
if L	$\varphi(ST[s]) \leftarrow 0$
goto L	None
Xor	$\varphi(ST[s-1]) \leftarrow \varphi(ST[s-1] V \varphi(ST[s])$ $\varphi(ST[s]) \leftarrow 0$
mul	$\varphi(ST[s]), \varphi(ST[s-1] \leftarrow \varphi(ST[s-1]) V \varphi(ST[s])$
div	$\varphi(ST[s]), \varphi(ST[s-1] \leftarrow \varphi(ST[s-1]) V \varphi(ST[s])$
getstatic x	$\varphi(ST[s+1]) \leftarrow \varphi(NVM[x])$
putstatic x	$\varphi(NVM[x]) \leftarrow \varphi(ST[x])$ $\varphi(ST[s]) \leftarrow 0$

FIGURE 5